

APPENDIX L. WILDLIFE TRACS ACTIONS AND OUTPUTS

Project Level	Action Level 1	Action Level 2	Action Level 3	Level 2 and Level 3 Output Measures	Description/Examples/Notes
Project Categories	Category	Strategy	Activity	Units	
Administration and/or Conservation / Management and/or Recreation	Coordination and Administration	Coordination and Administration		Number	Coordination and administration necessary for effective agency operations and program/project management
			Program/project administrative support	Number	Administration necessary for effective program/project management (e.g., staff support and training, monitoring progress of grant proposal and reporting processes)
		Incentives	Incentives	Number	Development and delivery of economic incentives to private landowners to influence responsible stewardship of land/water and specific species
	Direct Management of Natural Resources	Create new habitat or natural processes		Acres	Creation of new habitat or natural processes for the benefit of fish and wildlife and recreational users
			Habitat conversion	Acres	Conversion of one type of habitat into another (e.g., creating bottomland forest from agricultural land, wetland creation) Note: Forest and wetland would be the appropriate broad habitat types to code for these two examples
			impoundment creation	Acres	Creation of shallow water impoundments for the primary benefit of waterfowl
		Dam and barrier removal		Structures	Removal of barriers to maintain aquatic species populations and restore ecological functions in streams (e.g., dam or dike removal, notching of dams)
			Culvert work	Structures	Replacement or repair of road culverts (e.g., installing larger culvert, eliminating perching)

			Dam notching	Structures	Removal of portions of dams for increased flow
			Dam removal	Structures	Removal of entire dams
			Road crossing removal	Structures	Removal of other obstructions (e.g., beaver dams)
		Fire Management		Acres	Use of fire to benefit fish and wildlife and their habitats
			Fuel reduction	Acres	Application of treatments to reduce the risk of high-severity wildfires and to manage changes in the ecological functions of forests (e.g., mechanical thinning)
			Prescribed burning	Acres	Application of fire in a knowledgeable manner to forest fuels on a specific land under selected weather conditions to accomplish predetermined, well-defined management objectives (e.g., burning an established native grass community to reduce or eliminate invading brush or exotic species)
		Fish and wildlife habitat structures		Structures	Installation of structures to benefit fish and wildlife and their habitats
			Artificial reef development	Structures	Development of artificial reefs in freshwater or marine environments for aquatic species spawning, foraging and refugia
			Hibernacula	Structures	Creation or improvement of overwintering sites
			Nesting habitat improvements	Structures	Installation of nesting structures (e.g., wood duck boxes, osprey platforms)
			Wildlife escape structures	Structures	Installation of structures that allow wildlife to escape from man-made devices placed in the environment (e.g., ramps that allow sage grouse to escape from livestock watering troughs)
		Grazing/farm management		Acres	Improvements to agricultural practices to benefit fish and wildlife and their habitats
			Alley cropping/silvopasture	Acres	Methods of planting in which perennial, preferably leguminous trees or shrubs, are grown simultaneously with an arable crop
			Farming residue management	Acres	Use of vegetative crop material left on a field after harvesting, pruning or processing to benefit wildlife and soil quality
			Forage use management	Acres	Management of timing and duration of grazing to maintain adequate cover for range health and nesting success (e.g., establishment of rotational grazing system to improve grassland nesting bird habitat)
			Livestock heavy use area establishment	Acres	Provision of stable, non-eroding surfaces for areas intensively used by livestock to protect and improve water quality

			Livestock stream crossing	Acres	Installation of structures that allow livestock to cross a stream in a safe and environmentally sound manner (e.g., fords, culverts, bridges)
			Nutrient or runoff management system	Acres	Application of techniques to minimize nutrient runoff from agricultural operations
			Riparian fence installation	Acres	Installation of fences along riparian areas to keep out livestock
			Waste storage/treatment	Acres	Management of on-farm generated wastes in an environmentally responsible manner (e.g., liquid retention and storage ponds, anaerobic waste treatment lagoons)
		Hazard or infrastructure removal		Acres	Removal of hazards or infrastructure to benefit fish and wildlife and their habitats
			Degraded land reconstruction	Acres	Reconstruction of degraded land to benefit wildlife (e.g., abandoned mine area recovery, deleveling)
			Derelict gear (net/pot) removal	Acres	Removal of derelict fishing gear from waters to prevent continued capture of aquatic species (e.g., fishing nets, fish/crab pots)
			Shoreline armoring removal	Acres	Removal of shoreline armoring to improve aquatic habitats (e.g., jetties, riprap)
			Solid waste removal	Acres	Removal of solid waste to improve habitat for wildlife (e.g., derelict vehicles, rubbish)
		In stream modification		Miles	Stream improvements to benefit fish and wildlife and their habitats
			Channel reconfiguration	Miles	Restoration of natural stream channels (e.g., returning meanders and sustainable profiles to straightened streams, sandbar improvement)
			Channel structure placement	Miles	Placement of structures within streams to restore natural characteristics (e.g., cross vanes, boulders)
			Nutrient improvement	Miles	Application of nutrients to improve water quality of fish and wildlife (e.g., liming of streams, carcass placement)
			Spawning by-pass channels	Miles	Construction of side channel fish spawning and rearing habitat
			Spawning gravel placement	Miles	Addition of gravel to streams to improve spawning areas
			Stream bank stabilization	Miles	Stabilization of stream banks (e.g., bank armoring, bank bioengineering)

		Invasive species control		Acres	Control of invasive
			Animal - chemical	Acres	Control of invasive animal species by chemical means (e.g., piscicide treatment of sea lamprey in inland waters)
			Animal - mechanical	Acres	Control of invasive animal species by mechanical means (e.g., constructing a barrier in a stream to prevent entry of invasive fish species)
			Plant - biological	Acres	Control of invasive plant species by biological means (e.g., using beetles to control purple loosestrife)
			Plant - chemical	Acres	Control of invasive plant species by chemical means (e.g., herbicide treatment of invasive plant species)
			Plant - mechanical	Acres	Control of invasive plant species by mechanical means (e.g., hand pulling of invasive plant species)
		Living shorelines		Acres	Physical manipulation in shoreline areas to maintain fish and wildlife habitats and/or restore ecological functions
				Acres	Placement of sand onto beaches and employing other techniques for their renourishment
			Beach renourishment		
			Erosion control structures	Acres	Installation of hard structures (e.g., seawall bulkhead) or living structures (e.g., greenwall systems) to control erosion
		Planting/seeding	Sand Dune restoration	Acres	Application of techniques to restore sand dunes (e.g., fencing off sea-grass areas)
				Acres	Planting or seeding to maintain fish and wildlife habitats and/or restore ecological functions
			Field border/hedgerow	Acres	Maintenance or establishment of edge between two vegetation types
			Herbaceous vegetation	Acres	Planting/seeding of grasslands
			Plant propagation/nursery	Acres	Use of nurseries to raise plants for habitat improvement
				Acres	Restoration of vegetation that lives at or below the water surface
			Submerged aquatic vegetation		
			Trees/shrubs	Acres	Planting trees or shrubs
			Vegetation buffer	Acres	Maintenance or establishment of strips of land with permanent vegetation to intercept stormwater runoff and minimize soil erosion
				Acres	Placement of limbs, bush, trees and stumps to improve habitat
			Woody debris		

		Vegetation management		Acres	Physical manipulation of vegetation to maintain fish and wildlife habitats and/or restore ecological functions
			Chaining	Acres	Dragging heavy chains to remove unwanted vegetation
			Clearing and snagging	Acres	Use of varied techniques to clear vegetation (e.g., brush shearing to set back early successional plant communities)
			Dixie harrow/Lawson aerator	Acres	Removal of vegetation and treating soil by pulling devices behind a tractor (e.g., removing sagebrush for improved herbaceous cover for sage grouse)
			Forest stand improvement	Acres	Removal of trees to improve forest habitat for wildlife (e.g., forest management that promotes a particular serial stage)
			Mowing	Acres	Cutting down grass or grain to maintain habitat for wildlife
			Plowing/Discing	Acres	Plowing or other mechanical means of disturbing existing vegetation and exposing soil
		Water management		Number	Management of water to benefit fish and wildlife and their habitats
			Ditch plugs	Number	Installation of earthen plugs into drainage ditches to restore wetlands
			Diversion/headgate	Number	Installation or maintenance of structures to divert water
			Drainage	Number	Removal of tile drains or drainage ditches to restore wetland hydrology
			Spring development	Number	Application of techniques to improve the flow, quantity and yield of water from a natural spring
			Tide gate	Number	Installation or maintenance of structures to increase the hydroperiod and water depth of a wetland
			Impoundment maintenance	Number	Maintenance of impoundments for waterfowl habitat (e.g., renovation of impoundment dikes)
			Water control structure	Number	Installation or maintenance of structures to simulate natural hydrological processes

		Wildlife damage management		Interventions	Assessment and management of damage from nuisance native fish and wildlife. Includes control of predators by biological, chemical or mechanical means to maintain populations of species at risk and restore ecological functions (e.g., gull or cormorant control, nest exclusion devices, cave gating) Note: Limited eligibility for funding through WSFR grant programs
		Wildlife disease management		Interventions	Assessment and management of wildlife disease situations. Includes control or treatment of diseased animals to maintain populations of species at risk and restore ecological functions (e.g., chronic wasting disease, brucellosis, tuberculosis, plague management activities)
	Data Collection and Analysis	Database development and management		Databases	Information technology development and maintenance to support project objectives (e.g., statewide database development) Note: This is different from other Data Collection and Analysis activities in that it refers to the hardware, software, and supporting infrastructure that support multiple data collection efforts
			Database development	Databases	Information technology development to support project objectives (e.g., statewide database development) Note: This is different from other Data Collection and Analysis activities in that it refers to the hardware, software, and supporting infrastructure that support multiple data collection efforts
			Information systems operations and maintenance	Databases	Information technology maintenance to support project objectives (e.g., GIS analyses) Note: This is different from other Data Collection and Analysis activities in that it refers to the hardware, software, and supporting infrastructure that support multiple data collection efforts

Research, survey or monitoring - fish and wildlife populations		Projects	Collection and analysis of data as part of research, survey or monitoring primarily focused on fish and wildlife populations Note: includes compilation, management, synthesis, analysis and reporting of spatial and non-spatial data Note: Code work on fish and wildlife diseases to Wildlife Disease Management within Direct Management of Natural Resources
	Abundance determination	Projects	Determination of relative abundance or estimation of size of fish and wildlife populations (e.g., adult population estimate, juvenile relative abundance)
	Age, size and sex structure	Projects	Determination of age, size or sex structure of fish and wildlife populations (e.g., age and growth, length frequency, sex ratio)
	Baseline inventory	Projects	Baseline survey and inventory to understand distribution of fish and wildlife population
	Food habits	Projects	Studies on food habits of fish and wildlife species or their utilization as prey
	Genetics	Projects	Genetics studies of fish and wildlife populations (e.g., population connectivity, hybridization)
	Movement	Projects	Studies of fish and wildlife movements (e.g., tagging, telemetry)
	Population assessment	Projects	Assessments of biological information to determine status of fish and wildlife populations (e.g., population viability analysis, fisheries stock assessment)
	Reproduction	Projects	Studies of reproduction of fish and wildlife populations (e.g., fecundity, nesting success)
Research, survey or monitoring - habitat		Projects	Collection and analysis of data as part of research, survey or monitoring primarily focused on fish and wildlife habitats Note: includes compilation, management, synthesis, analysis and reporting of spatial and non-spatial data

			Baseline inventory	Projects	Baseline survey and inventory to understand distribution of fish and wildlife habitat quality and quantity (e.g., wetland mapping)
			Monitoring	Projects	On-going monitoring of fish and wildlife habitat quality and quantity (e.g., annual early successional habitat survey, artificial reef condition)
		Research, survey or monitoring - utilization		Projects	Collection and analysis of data as part of research, survey or monitoring primarily focused on utilization of fish or wildlife resources and demographics of users Note: includes compilation, management, synthesis, analysis and reporting of data
			Harvest	Projects	Collection and analysis of data as part of research, survey or monitoring primarily focused on utilization of fish or wildlife resources (e.g., lake creel surveys; deer statistics)
			Human dimensions	Projects	Collection and analysis of data as part of research, survey or monitoring primarily focused on human dimensions (e.g., demographic surveys; resource economics analyses)
		Techniques development		Studies	Research and development of techniques important for the conservation and management of fish and wildlife
			Artificial propagation studies	Studies	Research on artificial propagation of fish and wildlife (e.g., nutrition studies, culture methods)
			Habitat restoration methods	Studies	Development or improvement of methods to restore habitats and natural processes (e.g., evaluations of water level fluctuations)
			Fish and wildlife research, survey and management techniques	Studies	Development or improvement of research techniques or management tools (e.g., tag retention studies, sampling device improvements, testing of animal control devices)
	Education	Student Training		Students	Training of educators/instructors on aquatic resources, firearm safety, and archery-related activities

				Students	Instruction of students on wildlife species and their habitats in an educational setting Note: This activity has a limited eligibility for reimbursement through WSFR grant programs
	Facilities and Areas (Major Renovation)		Wildlife education		
		Boat pump out and dump stations	Pump out stations (*)	Number	Pump out stations
			Dump stations (*)	Number	Dump stations
			Floating restrooms (*)	Number	Floating restrooms
			Pump out boats (*)	Number	Pump out boats
		Fish passage facilities		Number	Major renovation of facilities designed to allow fish to move past in stream barriers (e.g., fish ladders; counting stations) Note: Not related to removal of dams and other barriers coded elsewhere
			Counting traps/stations	Number	Counting traps/stations
			Downstream bypass facilities	Number	Facilities designed specifically for downstream movement of fish
			Fish ladders	Number	Fish ladders
			Fish lifts	Number	Fish lifts
			Nature-like fishways	Number	Fishways whose designs are based on simulating natural stream characteristics and are constructed of natural materials
		Fish screening and related facilities		Sites	Major renovation of screening systems that prevent fish from passing into areas that do not support their survival (e.g., into irrigation diversion channels) Note: Primarily funded by FRIMA grant program in Region 1
		Hatcheries (restoration)		Sites	Major renovation of facilities to propagate fish or wildlife species for restoration purposes
		Wildlife Management Areas	Dikes/levees	Number	Dikes/levees
			Observation Structures	Number	Wildlife blinds, towers, platforms, etc.

	Facilities and Areas (New Construction)	Boat pump out and dump stations		Number	Construction of new facilities for pumping sewage from boats Note: Typically funded through the Clean Vessel Act program
			Dump stations (*)	Number	Dump stations
			Floating restrooms (*)	Number	Floating restrooms
			Pump out boats (*)	Number	Pump out boats
			Pump out stations (*)	Number	Pump out stations
		Fish passage facilities		Number	Construction of new facilities designed to allow fish to move past in stream barriers (e.g., fish ladders; counting stations) Note: Not related to removal of dams and other barriers coded elsewhere
			Counting traps/stations	Number	Counting traps/stations
			Downstream bypass facilities	Number	Facilities designed specifically for downstream movement of fish
			Fish ladders	Number	Fish ladders
			Fish lifts	Number	Fish lifts
			Nature-like fishways	Number	Fishways whose designs are based on simulating natural
		Fish screening and related facilities		Sites	Construction of new screening systems that prevent fish from passing into areas that do not support their survival (e.g., into irrigation diversion channels) Note: Primarily funded by FRIMA grant program into Region 1
		Hatcheries (restoration purposes)		Sites	Construction of new facilities to propagate fish or wildlife species for restoration purposes
		Wildlife Management Areas		Number	Major renovation of facilities at Wildlife Management Areas
			Dikes/levees	Number	Dikes/levees
			Observation Structures	Number	Wildlife blinds, towers, platforms, etc.
	Facilities and Areas (Operations and Maintenance)	Boat pump out and dump stations		Number	Routine operations and maintenance of facilities for pumping sewage from boats Note: Typically funded through the Clean Vessel Act Program

			Dump stations	Number	Dump stations
			Floating restrooms	Number	Floating restrooms
			Gallons of sewage pumped	Number	Gallons of sewage pumped. Note: Likely to be a required data element in the future when CVA regulations are revised
			Pump out boats	Number	Pump out boats
			Pump out stations	Number	Pump out stations
		Fish passage facilities		Number	Routine operations and maintenance of facilities designed to allow fish to move past in stream barriers (e.g., fish ladders; counting stations) Note: Not related to removal of dams and other barriers coded elsewhere
			Counting traps/stations	Number	Counting traps/stations
			Downstream bypass facilities	Number	Facilities designed specifically for downstream movement of fish
			Fish ladders	Number	Fish ladders
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			Nature-like fishways	Number	Fishways whose designs are based on simulating natural stream characteristics and are constructed of natural materials
		Fish screening and related facilities		Sites	Routine operations and maintenance of screening systems that prevent fish from passing into areas that do not support their survival (e.g., into irrigation diversion channels) Note: Primarily funded by FRIMA grant program in Region 1
		Hatcheries (restoration)		Sites	Routine operations and maintenance of facilities to propagate fish or wildlife species for restoration purposes
		Wildlife Management Areas		Number	Routine operations and maintenance of Wildlife Management Areas Note: Activities primarily for restoration and management of species and habitats should be coded to Create, Restore or Enhance Habitat and Natural Processes
			Dikes/levees	Number	Dikes/levees

			Observation Structures	Number	Wildlife blinds, towers, platforms, etc.
			Trails	Number	
	Land and Water Rights Acquisition and Protection (Potential High Level Purposes: Conservation/ Management, Recreation, Administration)	Land acquisition	Fee title	Acres	Acquisition of lands through fee title acquisition
			Non-fee title	Acres	Acquisition of lands through leases, permanent easement, cooperative agreements, contracts or other non-fee title arrangements
		Water rights acquisition	Fee title	Acres feet	Purchase of water rights through fee title acquisition (e.g., purchase of water rights to maintain adequate flows for endangered stream fishes)
			Non-fee title	Acres feet	Acquisition of water rights through leases, permanent easements, cooperative agreements, contracts or other non-fee title arrangements (e.g., purchase of water rights to maintain adequate flows for endangered stream fishes)
		Conservation area designation		Acres	Designation of a site or landscape as having unique and important value to fish and wildlife with or without legal protections (e.g., waterfowl breeding area, Marine Protected Area)
		Private lands agreements		Acres	Number of acres that are protected by agreement with private landowners, but which do not involve active habitat improvement Note: Used extensively within the Landowner Incentive Program
	Outreach	Partner/stakeholder engagement		Number	Engagement of partners to achieve shared objectives and broader coordination across overlapping areas
			Government agency	Number	Engagement of federal, state and local agencies and tribal entities to achieve shared objectives and broader coordination across overlapping areas (e.g., outreach with tribal governments for habitat restoration)

			Non-governmental organization	Number	Engagement of the NGO community to achieve shared objectives and broader coordination across overlapping areas (e.g., coordinate with an NGO on a fish and wildlife GIS analysis)
			Others	Number	Engagement of other partners to achieve shared objectives and broader coordination across overlapping areas (e.g., convene an advisory committee from academia to assist with management planning for a species)
		Recruitment and retention activities		Number	Participation in programs intended to recruit and retain anglers, boater, hunters or wildlife watchers
			For wildlife watching	Number	Participation in programs intended to recruit and retain wildlife watchers Note: this activity has limited eligibility for funding through WSFR grant programs
	Planning	Land use planning		Plans	Leading or participating in land use planning for rural, urban or agricultural lands (e.g., assist in developing county-wide zoning plans, participate in workgroup regarding low impact development siting)
		Organizational strategic and CMS planning		Plans	Development of agency strategic and operational plans and fish and wildlife comprehensive management systems Note: Does not include actions to implement plans
			Organizational strategic and CMS planning	Plans	Development of agency strategic and operational plans Note: Does not include actions to implement plans
		Species and habitat management planning		Plans	Development of management plans for fish and wildlife species and habitats
			Species management planning	Plans	Development of management plans for fish and wildlife species (e.g., interjurisdictional fisheries management planning)
			Listed species recovery planning	Plans	Development of recovery plans for federal or state listed species

				Plans	Development of management plans for habitats and natural processes (e.g., management planning for longleaf pine habitat; Habitat Conservation Plan development)
			Habitat management planning		
			Habitat Conservation Plan (HCP) Development	Plans	
	Species Re-introduction and Stocking	State Wildlife Action planning		SWAPs	Conduct activities to develop and revise State Wildlife Action Plans (e.g., convene interagency work groups to revise portions of a SWAP, hold public hearings to help set priorities for SWAP conservation actions)
		Native Species restoration		Animals	Re-introduction, rehabilitation and relocation of native animals or plants in their historic habitats
			Propagation and stocking	Animals	Re-introduction of propagated native animals or plants to their historic habitats (e.g., restore American shad to rivers within their historic range, head-starting rare turtles)
			Rehabilitation	Animals	Rehabilitation of injured fish and wildlife
			Translocation	Animals	Relocation of native species (including plants) to suitable habitats (e.g., translocate/breed in captivity black-footed ferrets to establish new populations in suitable habitat)
	Technical Assistance	Environmental Review		Reviews	Review of agency and private sector policies, projects and plans (primarily related to development and adverse impacts to natural resources) to help ensure potential impacts to fish and wildlife are avoided, minimized and/or compensated/mitigated (e.g., review of municipal pier development, review of transmission corridor siting)
			Review of proposed projects	Reviews	Review of proposed development projects to help ensure that impacts to fish and wildlife are minimized and resource benefits are maximized

			Review of proposed policies and plans	Reviews	Review of non-conservation oriented policies and plans to help ensure that impacts to fish and wildlife are minimized and resource benefits are maximized (e.g., review of harbor dredging plan, review of state highway plans)
		Technical assistance		Assists	Provision of professional training and technical assistance to others on fish and wildlife assessment and management
			With individuals and groups involved in resource management decision making	Assists	Provision of professional training and technical assistance on fish and wildlife assessment and management to individuals and groups involve in resource management decision-making (e.g., provide agency-collected data to other governmental officials, train non-governmental organizations on new trapping methods, review of conservation-oriented policies and plans)
			With private landowners	Assists	Provision of technical assistance on fish and wildlife management practices to private landowners Note: Could include development and delivery of economic incentives to private landowners to influence responsible stewardship of land/water and specific species

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